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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/511,084 | 05/05/2005 | Doron Korengut | Q83512 | 6595 |

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EXAMINER

CHAPEL, DEREK S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2872

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/511,084 | Applicant(s) KORENGUT ET AL. | |
| | Examiner Derek S. Chapel | Art Unit 2872 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 1-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. It is noted that this application appears to claim subject matter disclosed in prior Application No. 60/415082, filed 9/30/2002. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is

considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- a. "wafer 22" in Figure 2;
- b. "cameras 30" in Figure 2;
- c. "image processor 34" in Figure 2;
- d. "controller 32" in Figure 4;
- e. "turning mirror 136" in Figure 4;
- f. "cameras 30" in Figure 4;
- g. "sensors 166" in Figure 11.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as

either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "54" has been used to designate both the optical system in Figure 3A and the optical system in Figure 3B. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

a. elements "68" and "70" are shown in Figure 4 but are not in the description for Figure 4;

b. elements "164", "166" and "194" are shown in Figure 9 but are not in the description for Figure 9;

- c. element "66" is shown in Figure 11 but is not in the description for Figure 11.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The attempt to incorporate subject matter into this application by reference to "two other U.S. patent applications, filed on even date, entitled 'Dark Field Inspection System' and 'Illumination System for Optical Inspection.'" is ineffective because the respective, U.S. application numbers and filing dates are not given.
7. The disclosure is objected to because of the following informalities:
- a. "CCD" should be changed to --charge-coupled device (CCD)-- in line 15 of paragraph [0038] of the specification on page 9;

b. "CMOS array" should be changed to --complementary metal oxide semiconductor (CMOS) array-- in line 16 of paragraph [0038] of the specification on page 9;

c. "CW diode laser" should be changed to --continuous-wave (CW) diode laser-- in line 4 of paragraph [0043] of the specification on page 11.

Appropriate correction is required.

Claim Objections

8. Claim 1 is objected to because of the following informalities: it is unclear whether "coupled" on lines 8 and 11 of claim 1 is to mean 'optically coupled' or 'physically coupled'. For the purpose of this examination, "coupled" is taken to mean --optically coupled--. Claims 2-7 are objected to for inheriting the same informalities through their dependency from claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(f) he did not himself invent the subject matter sought to be patented.

10. Claims 1-4 and 8-11, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Drake, U.S. Patent Number 6,778,267 B2 (hereafter Drake).

11. As to claim 1, Drake teaches an apparatus for imaging an area of a surface along a viewing angle that is oblique to the surface (see figure 1, element 16), the optics comprising: an afocal optical relay (see figure 1, element 12), which is adapted to form a tilted initial image of the area by collecting optical radiation from the area along an optical axis oriented at the viewing angle (see figure 1, element 16); a tilt correction unit (see figure 1, element 18), which is optically coupled to correct a tilt of the initial image so as to form a substantially undistorted intermediate image (see figure 1, elements 12, 16 and 18 and column 5, lines 19-33); and a magnification module (see figure 1, element 26, and column 6, lines 36-43), which is optically coupled to focus the intermediate image onto an image detector (see figure 1, elements 26 and 36 and column 6, lines 66-67).

12. As to claim 2, Drake teaches the combination of claim 1, wherein the afocal optical relay is telecentric and has unit magnification (see figure 1 and column 4, lines 63-67).

13. As to claim 3, Drake teaches the combination of claim 2, wherein the afocal relay has a central pupil (see figure 1, element 12, and column 6, lines 43-48) and comprises: a plurality of lenses, which are symmetrically arranged around the central pupil (see figure 1, element 12, and column 6, lines 43-48); and a spatial filter positioned at the central pupil (see figure 1, element 12, and column 6, lines 43-48).

14. As to claim 4, Drake teaches the combination of claim 3, wherein the initial image formed by the afocal optical relay is tilted by a tilt angle that is substantially equal to the viewing angle (see figure 1, elements 16 and 22, and column 5, lines 19-33).

15. The method steps recited in claims 8-11 necessarily result from the claimed apparatus recited in claims 1-4.

16. As to claim 8, Drake teaches the method for imaging an area of a surface along a viewing angle that is oblique to the surface includes the steps of forming a tilted initial image of the area by collecting optical radiation using an afocal optical relay along an optical axis oriented at the viewing angle (see figure 1, elements 16 and 12, and column 4, lines 47-67 and column 5, lines 19-33); correcting a tilt of the initial image so as to form a substantially undistorted intermediate image (see figure 1, elements 12, 16 and 18 and column 5, lines 19-33); and focusing the intermediate image onto an image detector (see figure 1, elements 26 and 36 and column 6, lines 66-67).

17. As to claim 9, Drake teaches the combination of claim 8, wherein the afocal optical relay is telecentric and has uniform magnification (see figure 1 and column 4, lines 63-67).

18. As to claim 10, Drake teaches the combination of claim 9, wherein forming the tilted initial image comprises spatially filtering the collected optical radiation using a spatial filter positioned at a central pupil of the afocal optical relay (see column 6, lines 35-48).

19. As to claim 11, Drake teaches the combination of claim 10, wherein forming the tilted initial image comprises forming the initial image at a tilt angle that is substantially

equal to the viewing angle (see figure 1, elements 16 and 22, and column 5, lines 19-33).

20. Claims 1-14 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

The instant application declares Doron Korengut, Benjamin Cohen and Avishay Guetta as the inventors of the claimed subject matter, which includes the features recited in claims 1-2 and 8-9. Additionally, copending U.S. application number 10/511092 (U.S. Patent Application Publication 2005/0219518 A1), declares Doron Korngut, Erez Admoni, Ofer Kadar, Lev Haikoviz, Haim Feldman and Avishay Guetta as the inventors of subject matter encompassing some of the subject matter in the instant application (see claims 1 and 4-8 of copending U.S. application number 10/511092). After reviewing copending U.S. application number 10/511092 it appears that the drawings of the instant application are very similar to that of copending U.S. application number 10/511092. It is unclear who the correct inventor is of the claimed subject matter recited in the instant application. Since the inventors cannot be determined for limitations disclosed in claims 1-2 and 8-9, claims 3-7 are rejected for depending from claims 1 and 2 and claims 10-14 are rejected for depending from claims 8 and 9.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

23. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

24. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drake, U.S. Patent Number 6,778,267 B2 (hereafter Drake) in view of Satou, U.S. Patent Number 6,594,076 B2 (hereafter Satou).

25. As to claim 7, Drake teaches the combination of claim 1, the magnifying element (see figure 1, element 26) has an object plane at the intermediate image (see figure 1, element 18) and an image plane at the image detector (see figure 1, element 36).

Drake does not teach that the magnification module comprises multiple, selectable magnifying elements with different, respective magnifications.

However, Satou teaches an inspection microscope (see figure 1 of Satou) having multiple magnification modules, individually selectable, with different respective magnifications (see column 8, lines 11-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Drake and Satou to replace the magnifying element (objective) of Drake with a revolver having a plurality of multiple magnification modules, individually selectable, with different respective magnifications for the purpose of varying the magnification of the specimen being inspected.

26. The method steps recited in claim 14 necessarily result from the claimed apparatus recited in claims 1-4 and 7.

Double Patenting

27. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

28. Claims 1-2 and 8-9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-8 of copending Application No. 10/511092. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

a) As to claims 1-2 and 8-9 of the instant application, claims 1 and 4-8 of copending Application Number 10/511092 claim: an apparatus for inspection of a sample comprising:

a radiation source, which is adapted to direct optical radiation onto an area of a surface of the sample; a plurality of image sensors, each of which is configured to receive the radiation scattered from the area into a different, respective angular range, so as to form respective images of the area; and an image processor, which is adapted to process at least one of the respective images so as to detect a defect on the surface (see claim 1 of copending Application Number 10/511092).

The inspection apparatus comprising collection optics, which comprise a plurality of objectives, each of which is respectively associated with one of the image sensors so as to capture the radiation scattered from the surface over the respective angular range, and to convey the captured radiation to the one of the image sensors (see claim 4 of copending Application Number 10/511092).

The inspection apparatus wherein the objectives have respective optical axes that intercept the surface at respective oblique angles, and wherein the collection optics further comprise: a plurality of tilt correction units, which are associated respectively with the objectives and are adapted to correct for the respective oblique angles so as to create substantially undistorted intermediate images; and a plurality of focusing optics, which are optically coupled to focus the intermediate images onto the image sensors (see claim 5 of copending Application Number 10/511092).

The inspection apparatus wherein at least two of the oblique angles are at different, respective elevations relative to the surface, and wherein the tilt correction units are adapted to correct for the different elevations so that the intermediate images are substantially undistorted irrespective of the elevations (see claim 6 of copending Application Number 10/511092).

The inspection apparatus wherein the objectives comprise afocal, telecentric relay optics having unit magnification (see claim 7 of copending Application Number 10/511092).

The inspection apparatus wherein the collection optics comprise multiple lenses associated with each of the image sensors, and wherein the lenses are selectable so as to vary a magnification of the images formed by the sensor arrays (see claim 8 of copending Application Number 10/511092).

It is noted by the examiner that method claims 8 and 9 of this instant application would necessarily result from the apparatus claims 1 and 2 of the

instant application which are disclosed by claims 1 and 4-8 of copending
Application Number 10/511092.

This is a provisional obviousness-type double patenting rejection because the
conflicting claims have not in fact been patented.

Other Related Art

29. The prior art made of record and not relied upon is considered pertinent to
applicant's disclosure.

30. Chastang et al, U.S. Patent Number 5,729,383 discloses an oblique viewing
microscope system.

31. Mizutani, U.S. Patent Number 5,633,721 discloses an oblique viewing system.

Conclusion

32. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Derek S. Chapel whose telephone number is 571-272-
8042. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Drew A. Dunn can be reached on 571-272-2312. The fax phone number for
the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek Chapel

DSC

11/6/2006

Arnel Lavarias
ARNEL LAVARIAS
PRIMARY PATENT EXAMINER